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| 10/595,279   | 04/04/2006  | Hiraku Akiho         | 09792909-6676       | 6663             |
| 26263 7590 07/09/2008<br>SONNENSCHN NATH & ROSENTHAL LLP<br>P.O. BOX 061080<br>WACKER DRIVE STATION, SEARS TOWER<br>CHICAGO, IL 60606-1080 |             |                      |                     |                  |
| EXAMINER   |             |                      |                     |                  |
| TRAN, CHUC   |             |                      |                     |                  |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/595,279

**Applicant(s)**

AKIHO ET AL.

**Examiner**

CHUC D. TRAN

**Art Unit**

2821

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,8-11,13,14 and 16 is/are rejected.
- 7) ☒ Claim(s) 3,7,12,15,17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Takahashi et al (US 2007/0001921).

Regarding claim 1, Takahashi disclose a magnetic core member (45) (Fig. 10) for an antenna module (1) (Fig. 10), comprising an antenna coil (12) (Fig. 10), the antenna coil having a loop shape [0046], the first surface (45a) of core member facing the antenna coil (12) (Fig. 10), the first surface having a recess (35B) (Fig. 10), and the recess having an annular shape formed in a region of the first surface corresponding to the loop-shape of the antenna coil (12) (Fig. 10).

Regarding claim 2, Takahashi disclose that the recess is an annular groove [0108] (Fig. 10).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4-6, 8-10, 13-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (2007/0001921) in view of Mizoguchi et al (USP. 6,953,841).

Regarding claim 5, Takahashi disclose a magnetic core member (45) (Fig. 10) for an antenna module (1) (Fig. 10), comprising an antenna coil (12) (Fig. 10), the antenna coil having a loop shape [0046], a first surface (45a) of core member facing the antenna coil (12) (Fig. 10), the first surface having a recess (35B) (Fig. 10), and the recess having an annular shape formed in a region of the first surface corresponding to the loop-shape of the antenna coil (12) (Fig. 10). However, Takahashi is silent on the limitation of a base for antenna coil formed on being stacked facing to a first surface of the magnetic core member. Mizoguchi disclose in Fig. 5 the insulating antenna coil base (20B) (Col. 16, Line 25). Thus, it would have been obvious to one of ordinary skill in the art to modify Takahashi's antenna system by providing the insulating antenna coil base being stacked facing to a first surface of the magnetic core member as taught by Mizoguchi. Providing the insulating antenna coil base between the antenna coil and the first surface of the magnetic core member for generating magnetic fields in order to provide exhibit its communication performance in antenna module of Takahashi would have been obvious to one of ordinary skill.

Regarding claim 6, Takahashi disclose that the recess is an annular groove [0046].

Regarding claim 9, Takahashi disclose that a metal shield plate (3) (Fig. 10) disposed on a second surface opposite to the first surface of the magnetic core member (45) (Fig. 10).

Regarding claim 10, Takahashi disclose that a signal processing circuit unit (24) (IC) (Fig. 3) electrically connected to said antenna coil (12) [0054].

Regarding claim 13, Takahashi disclose a magnetic core member (45) (Fig. 10) for an

antenna module (1) (Fig. 10), comprising a housing (21) (Fig. 3), an antenna coil (12) (Fig. 10), the antenna coil having a loop shape [0046], a metal shield plate (3) (Fig. 3) stack on the magnetic core member (4) (magnetic core member (4) and (45) are the same magnetic core) are mounted in the housing (21) (Takahashi, Fig. 3), a first surface (45a) of core member facing the antenna coil (12) (Fig. 10), the first surface having a recess (35B) (Fig. 10), and the recess having an annular shape formed in a region of the first surface corresponding to the loop-shape of the antenna coil (12) (Fig. 10). However, Takahashi is silent on the limitation of a base for antenna coil formed on being stacked facing to a first surface of the magnetic core member. Mizoguchi disclose in Fig. 5 the insulating antenna coil base (20B) (Col. 16, Line 25). Thus, it would have been obvious to one of ordinary skill in the art to modify Takahashi's antenna system by providing the insulating antenna coil base being stacked facing to a first surface of the magnetic core member as taught by Mizoguchi. Providing the insulating antenna coil base between the antenna coil and the first surface of the magnetic core member for generating magnetic fields in order to eliminate electromagnetic field interference between the antenna coil and the communication terminal in antenna module of Takahashi would have been obvious to one of ordinary skill.

Regarding claim 14, Takahashi disclose that the recess is an annular groove [0046].

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (2007/0001921) in view of Mizoguchi et al (USP. 6,953,841) further in view of Ishida et al (US 2005/0254183).

Regarding claim 11, Takahashi disclose the antenna module as set forth in the claims except the signal processing circuit unit is mounted on a surface of said base, facing said

magnetic core member, and an opening is provided in said magnetic core member for accommodating said signal processing circuit unit. Ishida disclose in Fig. 12, comprising the signal processing circuit unit (102) is mounted on a surface of said base (100), facing said magnetic core member (101) (Ishida, Fig. 12), and an opening is provided in said magnetic core member for accommodating said signal processing circuit unit (Ishida, Fig. 12). Thus, it would have been obvious to one of ordinary skill in the art to modify Takahashi's antenna system by providing the signal processing circuit unit is mounted on a surface of said base, facing said magnetic core member, and an opening is provided in said magnetic core member for accommodating said signal processing circuit unit as taught by Ishida. Providing the signal processing circuit unit is mounted on a surface of said base, facing said magnetic core member, and an opening is provided in said magnetic core member for accommodating said signal processing circuit unit for storing the electromagnetic wave energy from the antenna coil in order to reduce the power consumption of the antenna module of Takahashi would have been obvious to one of ordinary skill.

Regarding claims 4, 8 and 16, Takahashi disclose the antenna module as set forth in the claims except a depth of the recess is less than 0.1 mm. Mizoguchi disclose the magnetic core antenna in Fig. 39 the depth (W) of said recess is less than 0.1 mm (Mizoguchi, Col. 22, Line 50). Thus, it would have been obvious to one having ordinary skill in the art to recognize the Takahashi's and Ishida's antenna-module by making the depth of said recess is less than 0.1 mm as taught by Mizoguchi. Providing the known technique by making the of said recess is less than 0.1 mm for great inductance in order to minimize a thickness of the antenna module of Takahashi would have been obvious to one of ordinary skill.

***Allowable Subject Matter***

6. Claims 3, 7, 12, 15 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUC D. TRAN whose telephone number is (571)272-1829. The examiner can normally be reached on M-F Flex hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chuc D Tran/  
Examiner, Art Unit 2821

/Douglas W Owens/  
Supervisory Patent Examiner, Art Unit 2821  
July 2, 2008